What Is Claimed Is:

1. A method for collecting sensor data in a pressure regulator system including a controller and a plurality of sensors where the controller is configured to collect sensor data, the method comprising the steps of:

placing the controller in a first mode;

issuing a first controller command to activate a selected sensor of the plurality of sensors;

placing the controller in a second mode for a first predetermined period of time where the controller consumes a reduced amount of power in the second mode than when operating in the first mode;

placing the controller in the first mode after the first predetermined period has lapsed; and

issuing a second controller command to collect sensor data from the selected sensor.

2. The method of claim 1, wherein the processor includes a central processing unit and the step of placing the processor in the second mode includes the step of reducing the operating frequency of the central processing unit.

3. The method of claim 1, further including the steps of:

prior to the step of placing the controller in the second mode, setting an internal clock to generate a first output signal after the first predetermined period of time has lapsed; and

performing the step of placing the controller in the first mode after the first predetermined period has lapsed in response to the first output signal.

4. The method of claim 1, wherein the first predetermined period of time approximately equals the amount of time necessary for the selected sensor to warm up sufficiently to provide accurate sensor data.

5. The method of claim 1, further including the step of placing the controller in the first mode in response to a request for external communication if the controller is in the second mode.

,6. The method of claim 1, further including the step of placing the controller in a third mode where the controller consumes a reduced amount of power in the third mode than when operating in the second mode after the sensor data has been collected from the selected sensor.

7. The method of claim 6, wherein the controller further comprises a central processing unit and the step of placing the controller in the third mode includes the step of removing the power supplied to the central processing unit.

8. The method of claim 6, wherein the controller further comprises an internal clock and the step of placing the controller in the third mode includes the step of removing the power supplied to the internal clock.

9. The method of claim 6, wherein the controller further comprises a random access memory and the step of placing the controller in the third mode includes the step of removing the power supplied to the random access memory.

10. The method of claim 6, further including the steps of:

prior to the step of placing the controller in the third mode, setting an external clock to generate a second output signal after a second predetermined period of time has lapsed; and

performing the step of placing the controller in the first mode after the second predetermined period has lapsed in response to the second output signal.

11. The method of claim 6, further including the step of placing the controller in a first mode in response to a request for external communication if the controller is in the third mode.

12. The method of claim 1, wherein the step issuing the first controller command to activate the selected sensor includes the step of issuing a controller command to supply power to the selected sensor.

13. The method of claim 1, further including the step of issuing a third controller command to deactivate the selected sensor after the sensor data has been collected from the selected sensor.

14. The method of claim 13, wherein the step of issuing the third controller command to deactivate the selected sensor includes the step of issuing a controller command to reduce the amount of power supplied to the selected sensor.

15. The method of claim 13, wherein the step of issuing the third controller command to deactivate the selected sensor includes the step of issuing a controller command to remove the power supplied to the selected sensor.

16. A method for collecting sensor data in a pressure regulator system including a controller and a plurality of sensors, where the controller is configured to collect sensor data from each of the plurality of sensors during a sampling period, the method comprising the steps of:

activating a first selected sensor of the plurality of sensors;

collecting sensor data from the first selected sensor;

deactivating the first selected sensor;

activating a second selected sensor of the plurality of sensors;

collecting sensor data from the second selected sensor; and

deactivating the second selected sensor.

17. The method of claim 16, wherein the step of activating the first selected sensor includes the step of supplying power to the first selected sensor and the step of deactivating the first selected sensor includes the step of removing power from the first selected sensor.

18. The method of claim 16, wherein the first selected sensor is adapted to be placed in a sleep mode or in an operational mode where the first selected sensor consumes a reduced amount of power in the sleep mode and the step of activating the first selected sensor includes the step of placing the first selected sensor in the operational mode and the step of deactivating the first selected sensor includes the step of placing the first selected sensor in the sleep mode.

19. The method of claim 18, further including the steps of:

initializing the first selected sensor; and

placing the first selected sensor in the sleep mode.

20. The method of claim 16 wherein the controller is adapted to be placed in an operational mode or in a sleep mode where the controller consumes a reduced amount of power when operating in the sleep mode than when operating in the operational mode and the method further includes the steps of:

after the step of activating the first selected sensor, placing the controller in the sleep mode for a first predetermined period of time where the first predetermined period of time approximately equals the amount of time necessary for the first selected sensor to warm up sufficiently to provide accurate sensor data; and

after the step of activating the second selected sensor, placing the controller in the sleep mode for a second predetermined period of time where the second predetermined period of time approximately equals the amount of time necessary for the second selected sensor to warm up sufficiently to provide accurate sensor data.

21. The method of claim 16 wherein the controller is adapted to be placed in an operational mode and in a deep sleep mode where the controller consumes a reduced amount of power when operating in the deep sleep mode than when operating in the operational mode and the method further includes the step of after deactivating the second selected sensor, placing the controller in the deep sleep mode for a third predetermined period of time where the third predetermined period of time approximately equals the amount of time between two consecutive sampling periods.

22. The method of claim 16, wherein the first selected sensor comprises a pressure sensor.

23. The method of claim 16, wherein the first selected sensor comprises a travel sensor.

24. The method of claim 16, wherein the first selected sensor comprises a voltage detector.

25. The method of claim 16, wherein the first selected sensor comprises a battery chemistry detector.

26. The method of claim 16, further including the steps of:

activating an I/O device coupled between the controller and the first selected sensor prior to collecting sensor data from the first selected sensor; and

deactivating the I/O device after collecting sensor data from the first selected sensor.

27. The method of claim 26, wherein the step of activating the I/O device includes the step of supplying power to the I/O device and the step of deactivating the I/O device includes the step of removing power from the I/O device.

28. The method of claim 26, wherein the I/O device is adapted to be placed in a sleep mode or in an operational mode where the I/O device consumes a reduced amount of power in the sleep mode and the step of activating the I/O device includes the step of placing the I/O device in the operational mode and the step of deactivating the I/O device includes the step of placing the I/O device in the sleep mode.

29. The method of claim 28, further including the steps of:

initializing the I/O device; and

placing the I/O device in the sleep mode.

30. The method of claim 26 wherein the I/O device comprises an A/D converter.

31. A pressure regulator for controlling fluid in a pipeline, the pressure regulator being operated by a battery, comprising:

a battery sensor adapted to sense an operation parameter of the battery, and responsively generate an operation parameter signal;

a memory adapted to store a threshold capacity value of the battery, and responsively generate a threshold capacity signal; and

a controller unit for controlling power consumption of the pressure regulator, wherein the controller unit is adapted to receive the operation parameter signal and the threshold capacity signal, and responsively generate a command signal to operate the pressure regulator in at least one of a plurality of operating modes.

32. The pressure regulator of claim 31, wherein the controller unit includes a processor having a computation unit and a logic unit, wherein the computation unit is adapted to generate a remaining capacity signal indicative of the remaining capacity of the battery in response to the operation parameter signal, and wherein the logic unit is adapted to compare the remaining capacity signal and the threshold capacity signal, and responsively generate the command signal to operate the pressure regulator in the at least one of the plurality of operating modes in accordance with a logic routine.

33. The pressure regulator of claim 32, wherein the plurality of operating modes includes a power conservation mode and a failsafe mode, wherein the logic routine operates the pressure regulator in the power conservation mode when the remaining capacity signal is less than the threshold capacity signal, and wherein the logic routine operates the pressure regulator in the failsafe mode when the remaining capacity signal is below a minimum threshold capacity signal.

34. The pressure regulator of claim 33, further including a back-up battery coupled to the pressure regulator, wherein the logic routine is adapted to activate the back-up battery in the failsafe mode.

35. The pressure regulator of claim 33, wherein the logic routine is adapted to deactivate the battery sensor in the failsafe mode.

36. The pressure regulator of claim 33, wherein the logic routine is adapted to shutdown the processor in the failsafe mode.

37. The pressure regulator of claim 33, wherein the threshold capacity value includes a first threshold value and a second threshold value, and wherein the power conservation mode includes a first power conservation mode and a second power conservation mode, wherein the memory is adapted to generate a first threshold signal in response to the first threshold value,

wherein the memory is adapted to generate a second threshold signal in response to the second threshold value, wherein the logic routine is adapted to operate the pressure regulator in the first power conservation mode when the remaining capacity signal is less than the first threshold signal, and wherein the logic routine is adapted to operate the pressure regulator in the second power conservation mode when the remaining capacity signal is less than the second threshold signal.

38. The pressure regulator of claim 37, wherein the logic routine is adapted to generate an alarm in at least one of the first power conservation mode and the second power conservation mode.

39. The pressure regulator of claim 38, wherein the alarm includes a first alarm and a second alarm, wherein the logic routine is adapted to generate the first alarm in the first power conservation mode, and wherein the logic routine is adapted to generate the second alarm in the second power conservation mode.

40. The pressure regulator of claim 37, wherein the processor includes a clock adapted to provide a clock signal at a frequency, wherein the controller unit is adapted to receive the operation parameter signal at a sample rate corresponding to the frequency of the clock signal, and wherein the logic routine is adapted to reduce the frequency of the clock signal in one of the first power conservation mode and the second power conservation mode.

41. The pressure regulator of claim 40, wherein the logic routine is adapted to reduce the sample rate in at least one of the first power conservation mode and the second power conservation mode.

42. A controller unit adapted to control power consumption of a pressure regulator, the pressure regulator being operated by a battery, the controller unit comprising:

a battery sensor adapted to sense an operation parameter of the battery, and responsively generate an operation parameter signal;

a memory adapted to store a threshold capacity value of the battery, and responsively generate a threshold capacity signal; and

a processor adapted to receive the operation parameter signal and the threshold capacity signal, and responsively generate a command signal to operate the pressure regulator in at least one of a plurality of operating modes.

43. The controller unit of claim 42, wherein the processor includes a computation unit, a logic unit, and a clock, wherein the clock is adapted to provide a clock signal at a frequency, wherein the computation unit is adapted to receive the operation parameter signal from the battery sensor at a sample rate corresponding to the frequency of the clock signal, and responsively generate a remaining capacity signal indicative of the remaining capacity of the battery, and wherein the logic unit is adapted to compare the remaining capacity signal and the threshold capacity signal and operate the pressure regulator in the at least one of the plurality of operating modes in accordance with a logic routine.

44. The controller unit of claim 43, wherein the plurality of operating modes includes a power conservation mode and a failsafe mode, wherein the logic routine is adapted to operate the pressure regulator in the power conservation mode when the remaining capacity signal is less than the threshold capacity signal, and wherein the logic routine is adapted to operate the pressure regulator in the failsafe mode when the remaining capacity signal is below a minimum threshold capacity signal.

45. The controller unit of claim 44, wherein the threshold capacity value includes a first threshold value and a second threshold value stored in the memory, and wherein the power conservation mode includes a first power conservation mode and a second power conservation mode, wherein the memory is adapted to generate a first threshold signal in response to the first threshold value, wherein the memory is adapted to generate a second threshold signal in response to the second threshold value, wherein the logic routine is adapted to operate the pressure regulator in the first power conservation mode when the remaining capacity signal is less than the first threshold signal, and wherein the logic routine is adapted to operate the pressure regulator in the second power conservation mode when the remaining capacity signal is less than the second threshold signal.

46. A method for controlling power consumption of a pressure regulator, the pressure regulator being operated by a battery, the method comprising the steps of:

providing a battery sensor for sensing an operation parameter of the battery;

storing a threshold capacity value of the battery;

operating the pressure regulator in at least one of a plurality of operating modes in accordance with a logic routine based on the operation parameter and the threshold capacity value.

47. The method of claim 46, including the steps of:

determining a remaining capacity value of the battery based on the operation parameter;

comparing the remaining capacity value and the threshold capacity value; and

operating the pressure regulator in the at least one of the plurality of operating modes based on the comparison of the remaining capacity value and the threshold capacity value.

48. The method of claim 47, wherein the step of operating the pressure regulator includes the steps of:

operating the pressure regulator in a power conservation mode when the remaining capacity value is less than the threshold capacity value; and

operating the pressure regulator in a failsafe mode when the remaining capacity value is equal to zero.